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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/745,509	11/12/1996	MICHAEL S. FELD	MIT-6186Z	6390

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EXAMINER

SMITH, RUTH S

ART UNIT

PAPER NUMBER

3737

DATE MAILED: 03/22/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

08/745,509

Applicant(s)

FELD ET AL.

Examiner

Ruth S Smith

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 15-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 November 1996 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 19, 2002 has been entered.

***Drawings***

The drawings are objected to because the in figure 1, box 80 should be labeled visible light source. FPA 140 is not seen in figure 4 as disclosed. Correction is required.

***Claim Rejections - 35 USC, 112***

Claims 29-34 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification fails to disclose a method of endoscopic imaging using a sensor array that senses endogenous fluorescence. The disclosed method senses Raman scattered light. The only reference to sensing fluorescence of endogenous tissue is at page 4, line 30. The specification merely discloses that the method can include the use of fluorescence of endogenous tissue and Raman shifted measurements but fails to provide any teaching of structural elements which are to be used to provide for a measurement of fluorescence of endogenous tissue. The only structure set forth provides for Raman shifted measurements.

***Claim Rejections - 35 USC, 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15-17,19-24,26-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alfano et al (5,293,872) in view of Lewis et al and Ito or Nagasaki et al. Alfano et al disclose the basic teaching of using a Raman endoscope as a diagnostic tool in examining tissue in vivo. Alfano et al discloses the use of a Nd:YAG laser to excite the tissue. Alfano et al also disclose the use of a broad band light source in order to provide a visible image of the tissue. Lewis et al disclose a spectroscopic imaging device that includes an acousto-optic tunable filter and a focal plane array detector. The focal plane array detector is cooled with liquid nitrogen. The invention of Lewis et al relates to non-invasively collecting images at multiple discrete wavelengths in the visible, infrared or near-infrared region. The device of Lewis et al is applicable to biological materials. Lewis et al disclose forming a plurality of images at different infrared wavelengths as seen in column 12. Lewis et al specifically refers to the use of the spectroscopic imaging device in a microscope but states in column 16 that the invention can be applied to other traditional absorption or emission spectroscopic approaches. Therefore, it would have been obvious to one skilled in the art to have modified Alfano et al such that the detector used is a focal plane array for the advantages disclosed by Lewis et al such as improved spectral and spatial resolution. Furthermore, it should be noted that it is a well known expedient in the art to place the imaging device at the distal end of the endoscope rather than using an optical fiber to transmit the detected radiation to an image sensor. Examples of such is shown in Ito and Nagasaki et al. Ito and Nagasaki et al also disclose the use of a filter in front of the image sensor to filter out undesired wavelengths. It would have been obvious to one skilled in the art to have further modified Alfano et al such that the focal plane array sensor is placed at the distal end of the endoscope. The advantage of such is to prevent the quality of pictures from deteriorating due to the breaking of optical fibers. Furthermore, it would have been obvious to one skilled in the art to have placed an

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optical filter in front of the imaging sensor in order to detect Raman scattered radiation at the desired wavelengths.

Claims 18,25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alfano et al (5,293,872) in view of Lewis et al and Ito or Nagasaki et al as applied to claim 15 above, and further in view of Sekiguchi. Sekiguchi discloses an endoscope that provides both a visible image and an image that provide information regarding tissue properties. The images are displayed simultaneously by a processing unit. Therefore, the system provides means for comparing the images. It would have been obvious to one skilled in the art that the images displayed by Alfano et al are simultaneously displayed such that they can be compared. Such comparison provides a more enhanced diagnostic evaluation tool.

### ***Response to Arguments***

Applicant's arguments filed February 19, 2002 have been fully considered but they are not persuasive. With respect to the rejection of claims 29-34 under 35 USC 112 first paragraph, the specification fails to disclose a method of endoscopic imaging using a sensor array that senses endogenous fluorescence. The disclosed method senses Raman scattered light. The only reference to sensing fluorescence of endogenous tissue is at page 4, line 30 which merely states that such a measurement is possible without disclosing any structure necessary to obtain such a measurement. Applicant's arguments regarding both Ito and Nagasaki et al are noted, however, the references are provided as teachings to place the imaging device at the distal end of the endoscope rather than using an optical fiber to transmit the detected radiation to an image sensor. The advantage of such is to prevent the quality of pictures from deteriorating due to the breaking of optical fibers. Such a modification would be applicable to the detection of any type of optical signal.


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**Conclusion**

All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ruth S Smith whose telephone number is 308-3063. The examiner can normally be reached on M-F 5:30AM -2:00 PM. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-3590 for regular communications and (703) 308-0758 for After Final communications.

  
Ruth S Smith  
Primary Examiner  
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RSS  
March 21, 2002